

Notice of Allowability

Application No.

10/642,301

Examiner

Tuan H. Nguyen

Applicant(s)

TAMAKI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/18/2003.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 08/18/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Reasons For Allowance

1. Claims 1-20 are allowed over the prior art record.
2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, Minami et al. (U.S Pat. 6,587,510) discloses generating the control symbol, the control generates the control data which lowers the transmission power by 1 dB if the carrier to interference power ratio I/C is larger than a first threshold value, generates the control data which raises the transmission power by 1 dB if the carrier to interference power ratio I/C is smaller than a second threshold value, and generates the control data which holds the current transmission power if the carrier to interference power ratio I/C is between the first and the second threshold values. Based on these control data, the control symbol is generated. Also, the carrier to interference power ratio I/C is detected for each one band slot, so that the control generates one control symbol per one band slot.

Dahlman et al. (U.S PAT. 6,912,228) teaches obtaining an accurate signal quality measurement, it is desirable for all base station sectors to transmit at full power when the mobile terminal is measuring signal quality, regardless of the amount of data to transmit from each sector. Consider the signal quality estimation example shown in FIG. 2 for a synchronous, time division multiplex (TDM) radio communications system. In a

synchronous TDM system, the time-multiplexed pilot symbols for each of the base station access points are transmitted at the same time as shown in FIG. 2. The mobile terminal can time its measurement to occur during a time period when all of the base station access points are transmitting their pilot signals.

However, the prior art made of record, alone or in combination, fails to clearly teach or fairly suggest signal pair interference power ratio is larger than the predetermined signal pair interference power ratio, the user terminal is judged to exist within the non-interference domain; when signal pair interference power ratio is smaller than the predetermined signal pair interference power ratio, the user terminal is judged to exist within the interference domain; the transmission time from the access point to a user terminal in the non-interference domain and to a user terminal in the interference domain is divided with time to respectively obtain a first time period and a second time period; simultaneous communications are performed, in first time period, to a plurality of user terminals in the non-interference domain from a plurality of corresponding access points; and communications are performed on the time division basis, in second time period, to the user terminals in the interference domain from a plurality of access points, in combination with other limitations, as specified in the independent claim 1, and further limitations of their respective dependent claims 2-5.

Regarding claim 6, Minami et al. (U.S Pat. 6,587,510) discloses generating the control symbol, the control generates the control data which lowers the transmission power by 1 dB if the carrier to interference power ratio I/C is larger than a first threshold

value, generates the control data which raises the transmission power by 1 dB if the carrier to interference power ratio I/C is smaller than a second threshold value, and generates the control data which holds the current transmission power if the carrier to interference power ratio I/C is between the first and the second threshold values. Based on these control data, the control symbol is generated. Also, the carrier to interference power ratio I/C is detected for each one band slot, so that the control generates one control symbol per one band slot.

Dahlman et al. (U.S PAT. 6,912,228) teaches obtaining an accurate signal quality measurement, it is desirable for all base station sectors to transmit at full power when the mobile terminal is measuring signal quality, regardless of the amount of data to transmit from each sector. Consider the signal quality estimation example shown in FIG. 2 for a synchronous, time division multiplex (TDM) radio communications system. In a synchronous TDM system, the time-multiplexed pilot symbols for each of the base station access points are transmitted at the same time as shown in FIG. 2. The mobile terminal can time its measurement to occur during a time period when all of the base station access points are transmitting their pilot signals.

However, the prior art made of record, alone or in combination, fails to clearly teach or fairly suggest a transmitting control information calculation part for generating the transmitting control information to be transmitted to a plurality of access points via wired interface signal processing part, based on the information stored in database, wherein transmitting control information calculation part discriminates, based on desired signal pair interference power ratio, a plurality of user terminals as the user terminals in

the non-interference domain and the user terminals in the interference domain, divides with time the transmission times from the access points to the user terminals in the non-interference domain and to the user terminals in the interference domain to respectively generate a first time period and a second time period, and transmits, to a plurality of access points, the control signal to instruct the simultaneous communications, in first time period, to a plurality of user terminals in the non-interference domain from a plurality of corresponding access points and the communications, through the time-division in a plurality of access points, in second time period, to the user terminals in the interference domain, as specified in the independent claim 6, and further limitations of their respective dependent claims 7-12.

Regarding claim 13, Minami et al. (U.S Pat. 6,587,510) discloses generating the control symbol, the control generates the control data which lowers the transmission power by 1 dB if the carrier to interference power ratio I/C is larger than a first threshold value, generates the control data which raises the transmission power by 1 dB if the carrier to interference power ratio I/C is smaller than a second threshold value, and generates the control data which holds the current transmission power if the carrier to interference power ratio I/C is between the first and the second threshold values. Based on these control data, the control symbol is generated. Also, the carrier to interference power ratio I/C is detected for each one band slot, so that the control generates one control symbol per one band slot.

Dahlman et al. (U.S PAT. 6,912,228) teaches obtaining an accurate signal quality measurement, it is desirable for all base station sectors to transmit at full power when the mobile terminal is measuring signal quality, regardless of the amount of data to transmit from each sector. Consider the signal quality estimation example shown in FIG. 2 for a synchronous, time division multiplex (TDM) radio communications system. In a synchronous TDM system, the time-multiplexed pilot symbols for each of the base station access points are transmitted at the same time as shown in FIG. 2. The mobile terminal can time its measurement to occur during a time period when all of the base station access points are transmitting their pilot signals.

However, the prior art made of record, alone or in combination, fails to clearly teach or fairly suggest a transmission control part for controlling signal transmission to a plurality of user terminals based on the transmitting control information transmitted from synchronous timer and management server, wherein a plurality of user terminals are discriminated, based on the predetermined signal pair interference power ratio as the received power ratio of the desired signal and interference signal in respective user terminals, to the user terminals in the non-interference domain and the user terminals in the interference domain; and transmitting control information divides with time the transmission times from the access points to the user terminals in the non-interference domain and the user terminals in the interference domain to respectively generate a first time period and a second time period and instructs a plurality of access points to make simultaneous transmissions with the corresponding other access points to a plurality of user terminals in the non-interference domain in first time period and to make

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communications through time-division with the other access points to the user terminals in the interference domain in second time period, as specified in the independent claim 13, and further limitations of their respective dependent claims 14-16.

Regarding claim 17, Minami et al. (U.S Pat. 6,587,510) discloses generating the control symbol, the control generates the control data which lowers the transmission power by 1 dB if the carrier to interference power ratio I/C is larger than a first threshold value, generates the control data which raises the transmission power by 1 dB if the carrier to interference power ratio I/C is smaller than a second threshold value, and generates the control data which holds the current transmission power if the carrier to interference power ratio I/C is between the first and the second threshold values. Based on these control data, the control symbol is generated. Also, the carrier to interference power ratio I/C is detected for each one band slot, so that the control generates one control symbol per one band slot.

Kurobe et al. (U.S PAT. 6,975,641) teaches the accessing unit identifies the frame of the scene desired to be seen by using a cumulative number of frames as the information about a place where the frame of the scene desired to be seen is stored and by adding a value obtained by multiplying the time by a frame rate to the cumulative number of frames.

However, the prior art made of record, alone or in combination, fails to clearly teach or fairly suggest the unit of communication to user terminals from access points is defined as one frame period, a ratio (probability of non-interference) of the number of

user terminals in the non-interference domain to the number of user terminals belonging to one access point is obtained, a plurality of access points make the simultaneous communications to the user terminals in the non-interference domain for the time determined by multiplying one frame time with a product of the probabilities of non-interfering of each one among a plurality of access points, a plurality of access points make the communications on the time-division basis to the user terminals in the interference domain for the time determined by multiplying one frame time with a product of the values (probability of interference) obtained in each one of a plurality of access points by subtracting the probability of non-interfering from one (1), only one access point makes the communication with user terminals in the non-interference domain for the remaining period of one frame period, and the other access points divide the period for communications with the user terminals in the interference domain, as specified in the independent claim 17, and further limitations of their respective dependent claims 18-20.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any response to this action should be mailed to:

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Mail Stop_____ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571) 272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Nguyen
Examiner
Art Unit 2643


NAY MAUNG
SUPERVISORY PATENT EXAMINER